

Infectious Disease

# **HIV/AIDS-Related Knowledge, Attitudes, and Practices of a Rural Community in Kep, Kingdom of Cambodia**

Edith Y. Ho, B.Sc., M.Sc., (OT7) Shiv Grewal, M.D., MPH, CCFP\*

## **Abstract**

**This research project is among one of the first to assess HIV/AIDS-related knowledge, attitudes, and practices of people in Cambodia at the village level. In this qualitative study, twenty-five semi-structured group interviews with a total of 56 participants were conducted in Okrasa Village, Kep, Cambodia using a detailed questionnaire comprised of structured, open-ended and scenario-based questions. The findings of this study will be used for planning and implementing educational-behavioural interventions and assisting the Ministry of Health to establish a home-based care program in Kep as part of their *Continuum of Care for People Living with HIV/AIDS (PLHA)* initiative. Moreover, the results will provide baseline information for subsequent evaluation of interventions born of the partnership between the Kep Public Health District of the Ministry of Health, on behalf of the Royal Government of Cambodia, and the Centre for International Health at the University of Toronto, Canada.**

## **Introduction**

### **The Status of HIV/AIDS in Cambodia**

In recent years, Cambodia has experienced a gradual reduction of HIV/AIDS prevalence from 3.3% in 1997 to 2.6% in 2002 among adults 15 to 29 years of age.<sup>1,2</sup> The initial surge in HIV outbreak has peaked, the HIV prevalence rate among “high risk” groups such as commercial sex workers and their clients has significantly declined and the annual number of deaths caused by HIV/AIDS now exceeds the annual number of new infections. This remarkable outcome and accomplishments are largely due to the apt response of the Cambodian government working jointly with multilateral agencies and international and national Non-Governmental Organizations to implement effective interventions such as the 100% condom use program in 1999, a national policy applied in all brothels

\* Correspondence #1806 – 45 Carlton St, Toronto, ON, Canada M5B 2H9 Tel: (416) 895-1312 Email: edith.ho@utoronto.ca

and sex establishments to prevent HIV/AIDS transmission in the sex industry. Although Cambodia is heading in the right direction, the HIV/AIDS prevalence in this country remains the highest in Southeast Asia. Approximately 7,300 new infections are reported annually in Cambodia, of which 50% are housewives infected by their husbands, 30% are newborns infected through mother-to-child transmission, and 20% are traditional “high risk” individuals such as sex workers and their clients. Currently, there are approximately 157,000 people living with HIV/AIDS (PLHA). Of these, 22,000 will likely develop serious AIDS related illnesses in 2004.<sup>2</sup> A continuous collective effort must be made by all sectors of society in order to help fight the battle against HIV/AIDS.

### **Research Site:**

#### **Okrasa Village in the Okrasa Commune of Kep**

Kep is both a municipality and a province in the Southern part of Cambodia. It is the second smallest province in Cambodia with a population of 28,677.<sup>3</sup> There are six communes in Kep, each of which is made up of several villages. One commune is the Okrasa Commune, which has a population of 6119.<sup>3</sup> This Commune is made up of two villages: Okrasa Village and Dom Nark Chum Bok Village. The Okrasa Village was chosen for this research study because it is a site for implementing the primary healthcare initiative of the University of Toronto Centre for International Health.

The Okrasa Village is comprised of approximately 700 families with a population of 3329 people (1589 males and 1740 females), of which 48% are less than 18 years of age. Nearly 100% of the population are subsistence farmers and 13.43% supplement their

income by fishing.<sup>3</sup> The living conditions are poor, with a lack of electricity, on-site wells and clean water.

#### Research Objectives

The Ministry of Health has recently announced “HIV/AIDS and STI Prevention and Care” as one of the top priorities of the national primary healthcare plan. To date, few studies have been conducted to assess the HIV/AIDS-related knowledge, attitudes and practices of HIV/AIDS in Cambodia.<sup>5-9</sup> This research project will be among one of the first studies on the subject of HIV/AIDS at the village level. This study aims to

University of Toronto Medical Journal

assess HIV/AIDS- related knowledge, attitudes and practices among members of the Okrasa Village in Kep, Cambodia. The findings of this study will be used for planning and implementing educational-behavioural interventions and assisting the Ministry of Health to establish a home-based care program in Kep as part of their *Continuum of Care for People Living with HIV/AIDS* initiative.<sup>9</sup> Moreover, the results will provide baseline information for subsequent evaluation of interventions initiated under the partnership between the Kep Public Health District of the Ministry of Health, on behalf of the Royal Government of Cambodia, and the Centre for International Health at the University of Toronto, Canada.

#### Methods

##### Semi-Structured Group Interviews

This study was conducted in June and July of 2004 through semi-structured group interviews in Okrasa Village. The researcher was accompanied by a local interpreter and a Cambodian Red Cross volunteer who led the researcher from household to household. Eleven clusters of families were selected from different geographical areas of the village to enhance the representation of the Okrasa population. The interviews took place in the common gathering area outside of the villagers’ homes and lasted approximately 60 minutes each. Confidentiality was assured to every participant and oral consent was obtained.

##### Questionnaire

The questionnaire comprised of 66 structured and open-ended questions, with 17 demographic items, 15 HIV/AIDS-related knowledge items, 28 attitude items and six practice items. Depending on the reactions and responses obtained, the researcher made additional inquiries. Knowledge questions focused on HIV/AIDS etiology, information source, mode of transmission, risk factors, signs and symptoms and diagnosis and treatment. Attitude questions examined feelings towards PLHAs, attribution of responsibility and blame and subsequent actions towards PLHAs. The latter category consisted of scenario questions that determined participants’ behaviour towards PLHAs and villagers’ behaviour towards PLHA assessed by the participants themselves. Soliciting a third party response was important in obtaining an accurate public opinion about HIV/AIDS because participants would be more likely to respond honestly to questions pertaining to others versus themselves. Lastly, practice questions focused on intervention methods.

#### Results and Discussion

##### Identifying Data

Gender, Age, Education, Occupation

Twenty-five interviews were conducted with a total of 56 participants: 24 men and 32 women, with a mean age of 35 years. The mean age of the male participants was 30.8 years; this average was approximately 8 years younger than the mean age of the female participants. The men had on average 5.6 years of education while the women had on average only 2.7 years of education. This discrepancy was consistent with societies in which gender inequalitiescultural norms of granting men priority over women to receive schooling.<sup>9</sup>

Moreover, since the men in the study were on average younger than the women, it was likely that male participants had better educational opportunities than their older counterparts. Eleven participants (20%) never enrolled in school. Of the 45 who did, 10 (18%) received only three years of school and 14 (43%) received six years of school. In 1998, the National Health Survey reported that at least four years of basic education were required to achieve literacy (as defined by the ability to read a simple sentence).<sup>10</sup> Thus for this study, 22 of 56 participants (38%) were illiterate; this group comprised primarily of women. This finding further underscored the discrepancy between male and female education level.

Most of the participants interviewed were subsistence farmers in Okrasa Village. Eighteen (32.1%) held a second occupation such as fishermen or traditional birth attendants. Almost all of them were born and raised in the village and thus were very familiar with local affairs. Only one man reported being a migrant fisherman during the dry season. Most villagers stayed in the village exclusively and seldom ventured away for work. Minimal migration to places with high prevalence of HIV/AIDS was one of the most powerful protective factors against HIV/AIDS in this community.

#### Level of Interaction with PLHAs

The prevalence of HIV/AIDS in Okrasa Village has never been documented. However, based on broad national studies, the prevalence of HIV/AIDS in rural communities such as Okrasa Village is considered low. According to the villagers, approximately ten to fifteen PLHAs had lived in Okrasa Village over the past ten years; however, they had all passed away. Most participants (82.1%) had heard of PLHAs in Okrasa Village, but few had actually met one. Five participants were related to a PLHA who had passed away and three participants had been their primary care givers. For a village where HIV/AIDS prevalence was low, it was surprising that nearly 50% of participants had heard of a PLHA living in the village. This was likely due to a well-connected community where news about PLHAs would quickly spread to the whole village through word of mouth. It was not uncommon for PLHAs to be visited by neighbours and friends.

#### Knowledge of HIV/AIDS

The villagers demonstrated a simple, but adequate knowledge that HIV/AIDS was a sexually transmitted disease with absolute fatality. However, participants were unable to state the difference between HIV and AIDS. Knowledge regarding the mode of transmission was generally correct. The only major misconceptions involved saliva and mosquitoes. Educational efforts should be made to dispel these misperceptions. As indicated in Lentine's report, an understanding of

volume 82, number 2, March 2005

how HIV could *not* be transmitted was important to preventing stigma against individuals with HIV/AIDS.<sup>11</sup> The participants were able to correctly identify the signs and symptoms of HIV/AIDS as being rapid weight loss, abscess and pus, skin rashes and chronic diarrhea. Most of these items were listed as the cardinal signs and symptoms for diagnosis of HIV/AIDS in resource-limited settings.<sup>12</sup> Participants were fully aware of how and where to

get tested for HIV and that at least three blood tests must be done to confirm a diagnosis. However, they were not aware that anti-retroviral (ARV) therapy was available for all HIV-positive individuals in Takeo Hospital (in the neighbouring province of Takeo). Information about ARV therapy should be included in health education of HIV/AIDS. In summary, the results indicated that educational efforts had been effective at communicating to the public the nature of the disease, mode of transmission, signs and symptoms and method of diagnosis, but was less effective at communicating how HIV/AIDS was *not* transmitted and the currently available treatments for PLHAs.

#### Main Sources of Information about HIV/AIDS

Radio and television proved to be the most effective means of communication regarding HIV/AIDS. The national broadcast urged the public “to protect themselves, use condoms, not to have multiple sex partners and not to bring HIV/AIDS home”. Other commonly cited sources included friends and neighbours in the market. Younger participants who were still in school, or stopped school recently, indicated school lectures and textbooks as their primary sources of information. Two years ago, the educational board of Kep began to include HIV/AIDS education in every grade school curriculum starting from the fifth year of school. Participants who benefited from this revised curriculum demonstrated a more informed and accurate understanding of HIV/AIDS compared to the rest of the sample population. For example, participants who had learned about HIV/AIDS at school correctly stated that saliva and mosquitoes could not transmit HIV; other participants did not know this information. These findings suggested that the public school system had been effective in educating students about HIV/AIDS; such efforts should continue. Other sources of information included parents and relatives, families of PLHAs, newspaper, magazines and posters distributed by the Ministry of Health.

#### “High Risk” Groups and Risky Behaviour

Participants associated individuals at the *highest risk* of contracting HIV as being male, having money, living near the main road, traveling away for work or patronizing commercial sex workers. These descriptions characterized a small number of men serving as government workers, policemen or army officers who commute from Okrasa to Kampot, Sihanoukville, Phenom Penh, the Thailand/Cambodian border or another country. Participants identified individuals with *relatively high risk* of contracting HIV to be commercial sex workers and injection drug users.

Discussions with participants illustrated an interesting point about the sexual activity in this community. Men and women

**Table 1 Participants’ Responses to Attitude Questions**

Male and Female Yes No Don’t Know (N,%) (N,%) (N,%)

#### Responsibility and Blame

35 Are PLHAs an embarrassment to the Cambodian society? 49 88 2 4 5 9 36 Did PLHAs get what they deserve? 53 95 1 2 2 4

#### Behaviour of others and yourself towards PLHAs

37 Visiting a PLHA 38 39 Talking to a PLHA in the market 40 41 Talking to family members of PLHA 42 43 Buying food from a PLHA 44 45 Buying food from family members of PLHA 46 47 Allowing your children to play with children with HIV/AIDS 48 49 Allowing children play with kids whose parents are PLHA 50 51 Caring for family members with HIV/AIDS 52 Others? 44 86 24 5 10 You? 38 75 11 22 2 4 Others? 45 88 61 2 0 0 You? 45 88 61 2 0 0 Others? 47 92 48 0 0 You? 47 92 48 0 0 Others? 21 41 27 53 3 6 You? 23 45 27 53 1 2 Others? 32 63 19 37 0 0 You? 31 61 20 39 0 0 Others? 26 51 22 43 3 6 You? 31 61 18 35 2 4 Others? 43 84 51 0 3 6 You? 41 80 10 20 0 0 Others? 54 10 0 0 0 0 You? 51 94 36 0 0

#### Concerns for getting HIV/AIDS

53 Is HIV/AIDS a big problem in Cambodia? 52 96 0 0 2 4 54 Is HIV/AIDS a big problem in Okrasa Village? 22 41 25 46 7 13 55 Worry about getting HIV/AIDS Others? 45 80 7 13 4 7 56 You? 25 45 31 55 0 0

were expected to refrain from premarital and extramarital sex. However, men tended not to follow this norm when they traveled abroad. The common story of transmission was that men would travel away from the village, have sex, contract HIV and transmit it to their wives upon their return. Thus, the virus invariably originated from outside Okrasa Village. When infected individuals returned home, they would spread the virus only to their wives but not to others because these men would practice monogamy once they returned to the village. The participants inferred that men who did not leave Kep would have virtually no risk of contracting HIV/AIDS.

Another population vulnerable to infection would be the wives and children of men who travel away for work, as implied in the participants' anecdotes. This finding was consistent with national studies showing sexual contact between husband and wife to be the most prevalent mode of HIV transmission.<sup>2</sup> Other vulnerable groups included young people because they "tend not to heed advice", beer girls because "they had to offer sexual favours to gain beer customers", and pedicure and manicure clients because "contaminated equipment in the salon could transmit HIV". Except for two people who learned about men having sex with men from magazines, the concept of homosexuality was entirely foreign to this community.

The participants emphasized that residents along the main roads had higher risk of contracting HIV/AIDS. They were financially better off and often traveled away for work. By contrast, people who lived distant to the road were often poor subsistence farmers who could not afford to leave Kep; even if they did, the participants asserted that "these farmers could not afford to go to bars, meet girls or visit brothels". Residents along the main road were indeed wealthier. Land next to the road was generally worth more than farmland distant to the main road. The traffic flow from the road also provided a steady stream of customers to boost home-based businesses. In addition, easy access to cities afforded men the opportunity to travel, attend social gatherings, meet women and procure services of use commercial sex workers. This phenomenon supported the theory that HIV transmission enters an area along the main transportation routes and then spreads to adjacent areas.<sup>13</sup> Similar studies conducted in Africa reported that main transportation routes such as the Nairobi-Mombasa highway and the Trans-Africa highway were strongly associated with HIV infection.<sup>14-16</sup> In Mwanza, Tanzania, the prevalence of HIV doubled in communities located adjacent to the roadside compared to those living distant to the main road.<sup>17</sup> As Cambodia begins to industrialize and improve access to major cities, STD and HIV transmission might also increase along these main routes with subsequent spread into adjoining areas.

Identification of high risk groups in this community is key to realizing target groups for HIV/AIDS education. HIV/AIDS interventions intended for individual households should first be implemented in families adjacent to the main road because they possess the greatest risk for contracting HIV in Okrasa Village.

### **Attitudes Towards HIV/AIDS**

Questions regarding attitudes were grouped into three categories: feelings towards PLHAs, responsibility and blame of PLHAs, and behaviour of participants and perceived reactions of villagers towards PLHAs (Table 1).

#### **Feelings Towards HIV/AIDS**

Feelings towards HIV/AIDS ranged from being neutral to being upset, disgusted, afraid, angry, sympathetic and feeling hatred. Descriptions such as "playboy", "bad and stubborn people" and "irresponsible and selfish to not care for the family" were used to

characterize those who engaged in premarital and extramarital sex. Sympathy was the only positive response; however, that was exclusively directed towards women and children who became HIV/AIDS positive due to the unfaithful men in their family. Past interactions with PLHAs helped to develop sympathy, but there was no notable difference between visitors in feelings towards PLHAs and primary care givers of PLHAs. Four people reported that their feelings were neutral because they knew of PLHAs who were their “friends and neighbours and they were normal people too”. Two interviewees said that they could not speak poorly of PLHAs even though they had passed away because their families did not want others talking about it.

It was important to recognize that attitudes mentioned above might not necessarily predict participants’ behaviours towards PLHAs. However, social psychological research suggests that such attitudes often find expression in an individual’s ongoing pattern of behaviour.<sup>12</sup> Feelings of disgust might well be translated into avoidance or discrimination in real life situations. Thus, situation-based questions were included to help understand the relationship between attitude and behaviour.

#### Attributing Responsibility and Blame

Participants were most reluctant to answer attitude questions 35 and 36 (Table 1), which directly measured stigma and discrimination. Interviewees took a longer time to respond and were often shy about how they felt. Some participants decided not to answer the attitude questions. Overall, 49 of 56 (88 %) of the participants agreed that PLHAs were an embarrassment to the Cambodian society. Participants commented that PLHAs would make this country poorer and more terrible because their families had to sell their possessions to buy expensive medication for them. One person stated that “unlike war that kills only men, HIV will kill both men and women...children will be left without parents. Eventually, there won’t be anyone left in this country”.

An overwhelming majority of participants attributed blame and responsibility to men who contracted HIV/AIDS outside of marriage and transmitted the virus to their innocent wives and children. The interviewees reasoned that these men could have “practiced preventive measures against HIV/AIDS heard from the radio and televisions and heeded the advice”. The tendency to attribute responsibility and blame to PLHAs was worrisome because, as Herek’s study noted, “individuals with

volume 82, number 2, March 2005

an undesirable condition are generally subjected to greater stigma when they are perceived to be personally responsible for their situation. In the case of AIDS, such perceptions may be an unintended consequence of public education campaigns that stressed the importance of personal decision making in HIV prevention”.<sup>18</sup> Herek’s study concluded that health educators must “face the challenge of communicating the importance of protecting oneself from AIDS without promoting increased blame for individuals who become infected”.<sup>18</sup>

#### Behaviour Towards PLHAs

The findings revealed a strong correlation between participants’ attitude and their behaviour. Over half of the participants would be willing to visit and talk to PLHAs; they predicted others in the village would do likewise. However, about 50% of the participants would not purchase food from a PLHA or let their children play with children who had HIV/AIDS. All the interviewees agreed that people in the village would take care of their family members should they become HIV-positive because abandonment of family members was strictly forbidden. The participants commented that regardless of what the disease was, family members of the patient would still provide care. Only three participants indicated fear of becoming infected would prevent them from caring for



PLHAs. The strong emphasis on the importance of family inherent in the Khmer culture would make this community ideal for implementing home-based care programs for PLHAs.

The responses from the villagers stemmed primarily from discomfort and fear of getting HIV/AIDS. Interestingly, there were inconsistencies between knowledge of HIV transmission and behaviour towards PLHAs. As mentioned above, most participants knew that HIV/AIDS could not be transmitted via social contact, but many of them admitted that they still would not purchase food or visit PLHAs, or let their children play with children with HIV/AIDS. This finding illustrated that having the right knowledge does not necessarily translate into the right corresponding actions. For the participants, their feelings, beliefs, fears and stigma against HIV/AIDS overrode their knowledge about HIV/AIDS in determining their course of action. Social stigma can be detrimental to the PLHAs and others at risk of HIV once their status becomes public. In addition, it could affect the success of interventions and policies intended to prevent HIV transmission. Thus, eliminating AIDS stigma should be a public health goal in the fight against HIV/AIDS and the government should look for ways beyond simply increasing knowledge of the disease.

#### Concern for Getting HIV/AIDS in Okrasa Village

Overall, 21 of 24 (87%) males and 24 of 3256 (75%) females predicted that people in the village worried about contracting HIV/AIDS. However, the number dropped significantly when the question was directed at them (44% of men and 55% of women replied “yes”). Three protective factors against HIV infection emerged: low income level, minimal travel to places with high prevalence of HIV/AIDS, and lower low prevalence of polygamy within Okrasa Villagenumber of people with multiple sex partners. Many male participants worried about “leaving Kep and having sex elsewhere”, as they might be pressured by friends to use commercial sex workersprocure services of sex workers. Many female participants worried about their “husband leaving Kep and having sex with other women”. There was a general sense of helplessness among the female participants because they felt that they were not in control of the HIV/AIDS situation; they felt that it was entirely up to their husbands to avoid activities that could transmit HIV. There was some concern about being infected by mosquitoes, contaminated scissors in the salon, and contaminated needles in the health centres, but the primary concern pertained to sexual transmission.

#### Practices Regarding Prevention

Prevention strategies mentioned by the participants (Table 2) included using a condom, being faithful and having one sex partner (usually the spouse), avoiding needle sharing and using mosquitoes nets (according to those who believed that mosquitoes could transmit HIV).

**Table 2 Prevention Strategies Identified by Participants**

Strategies Males Females

Using a condom 24 30 Having one sex partner 7 5 Using a mosquito net 0 1 No needle sharing 1 0

Although all participants correctly identified condom use as a preventative measure, only 10 men and 8 women had ever seen a condom (Figure 1). Two men and one woman reported knowing how to use a condom and only one man had ever used one;



coincidentally, this man was the migrant fisherman who traveled to Sihanoukville every year during the dry season.

ffd8ffe000104a46494600010201009700970000ffe20c584943435f50524f46494c450001  
0100000c484c696e6f021000006d6e74725247422058595a2007ce000200090006003100  
00616373704d5346540000000049454320735247420000000000000000000000000000f  
6d6000100000000d32d485020200  
00  
0003364657363000001840000006c77747074000001f000000014626b707400000204000  
000147258595a000002180000000146758595a0000022c000000146258595a0000024000  
000014646d6e640000025400000070646d6464000002c400000088767565640000034c0  
00008676696577000003d4000000246c756d69000003f8000000146d6561730000040c0  
000002474656368000004300000000c725452430000043c0000080c675452430000043c0  
000080c625452430000043c0000080c7465787400000000436f707972696768742028632  
92031393938204865776c6574742d5061636b61726420436f6d70616e790000646573630  
000000000000012735247422049454336313936362d322e310000000000000000000000  
12735247422049454336313936362d322e3100000000000000000000000000000000  
00

Figure 1. Knowledge and Prevalence of Condom Use

University of Toronto Medical Journal

The most striking findings about preventive behaviour were the misconceptions about condoms. Some respondents “did not believe in condoms” because they had heard that condoms had holes and contained lubricant contaminated with HIV/AIDS. To increase condom use, health educators must first address these misconceptions before distributing condoms to the public.

Programs focused on HIV/AIDS prevention should capitalize on existing protective factors: low level of income discouraging procurement of the use of commercial sex services worker, minimal travel to places with high prevalence of HIV/AIDS and minimal polygamy within the Okrasa village. An effective HIV prevention program would educate people about the use of condoms and reinforce the existing cultural virtue of being faithful to one’s spouse – an action that is 100% effective in protecting husbands and wives of contracting HIV. Strategies for prevention at the national level were often designed for urban communities with high prevalence of HIV/AIDS. Thus, for rural communities such as Okrasa Village, these programs may not be effective. Such strategies should be adjusted and implemented in a manner appropriate to the context, values and norms of the village.

## Conclusion

It is hoped that the findings of this exploratory research project would guide the services, education and research efforts born of the partnership between the University of Toronto Centre of International Health and the Kep Provincial Health District of the Ministry of Health. Together with the local community, this Canadian/Cambodian partnership can actively create and implement programs that empower individuals to fight against HIV/AIDS.

## Acknowledgements

I would like to thank my supervisors Dr. Shiv Grewal, Ann Lovold and Dr. David Zakus for their invaluable guidance and support; my local colleagues, Thom Bunthoeun, Pichko Sen and Okrasa Red Cross Volunteers for their diligence and dedication; my Cambodian

teammates for their camaraderie and encouragement; and the people of Okrasa Village for their hospitality in welcoming me and sharing their unique and remarkable stories.

## References

- 1.1. HIV Sentinel Survey Report. Phnom Penh: National Centre for HIV/AIDS, Dermatology, and Sexually Transmitted Disease (NCHADS), Ministry of Health, Kingdom of Cambodia, 2000.
- 2.2. Brown T, Peerapatanapokin W (Cambodian Working Group on HIV Estimation and Projection). 2003. Projections for HIV and AIDS in Cambodia: 2000–2010. Phnom Penh: National Center for HIV/AIDS, Dermatology, and Sexually Transmitted Disease (NCHADS), Ministry of Health, Kingdom of Cambodia.
- 3.3. Okrasa Commune District Office. 2003 Statistics.
- 4.4. Unaid.org [homepage on the Internet]. Switzerland: Joint United Nations Programme on HIV/AIDS; c2005. UNAIDS National Response to HIV/AIDS Cambodia. Available from: <http://www.unaids.org/nationalresponse/result.asp?action=overall&country=347>.
- 5.5. Glaziou P, Bodet C, Loy T, *et al.* Knowledge, attitudes and practices of university students regarding HIV infection in Phnom Penh, Cambodia. *AIDS* 1999;13(14):1982-3.
- 6.6. Prybylski D, Alto WA. Knowledge, attitudes and practices concerning HIV/AIDS among sex workers in Phnom Penh, Cambodia. *AIDS Care*. 1999;11(4):459-72.
- 7.7. Morio S, Soda K, Tajima K, *et al.* Sexual behavioural study of commercial sex workers and their clients in Cambodia. Japan-Cambodia Collaborating Research Group. *AIDS* 1999;13(12):1599-601.
- 8.8. General Population Census of Cambodia. Provisional Totals, National Institute of Statistics and Ministry of Planning. July 1998.
- 9.9. Continuum of Care for People Living with HIV/AIDS: Operational Framework. National Centre for HIV/AIDS, Dermatology, and Sexually Transmitted Disease (NCHADS), Ministry of Health, First Edition, April 2003.
- 10.10. Camnet.com [homepage on the Internet]. Kingdom of Cambodia: National Institute of Public Health Publications; c1998. National Health Survey. Available from: [http://www.camnet.com.kh/nphri/html/nhs\\_survey\\_exec\\_summary.htm](http://www.camnet.com.kh/nphri/html/nhs_survey_exec_summary.htm).
- 11.11. Lentine DA, Hersey JC, Iannacchione VG, *et al.* HIV related knowledge and stigma. *Morb Mortal Wkly Rep*. 2000;49(47):1062-1064.
- 12.12. World Health Organization. Definition of AIDS.
- 13.13. Hudson CP. AIDS in rural Africa - a paradigm for prevention. *Int J STD AIDS*. 1996;7:236-43.
- 14.14. Mohamed AO, Bwayo JJ, Mutere AN, *et al.* Sexual behaviour of long-distance truck drivers and their contribution to the spread of sexually transmitted diseases and HIV infection in East Africa. VI International Conference on AIDS; 1990 San Francisco. *Abstract* EC729.
- 15.15. Nzyuko S. Teenagers along the trans-African highway. *AIDS Society* 1991;2:10.
- 16.16. Tarantola D, Schwartzlander B. HIV/AIDS epidemics in sub-Saharan Africa: dynamism, diversity and discrete declines. *AIDS* 1997;11 suppl B:S5-21.
- 17.17. Grosskurth H, Mosha F, Todd I, *et al.* A community trial of the impact of improved sexually transmitted disease treatment on the HIV epidemic in rural Tanzania: 2. Baseline survey results. *AIDS* 1995;9:927-34.
- 18.18. Herek G, Capitano J. HIV-related stigma and knowledge in the United States: prevalence and trends, 1991-1999. *Am J Public Health* 2002;92(3):371-377.

ffd8ffe000104a46494600010201009a009a0000ffe20c584943435f50524f46494c4500010100000c484c696e6f02100000  
6d6e74725247422058595a2007ce00020009000600310000616373704d53465400000000494543207352474200000000  
000  
000  
000  
47074000001f000000014626b707400000204000000147258595a00000218000000146758595a0000022c000000146258  
595a0000024000000014646d6e640000025400000070646d6464000002c400000088767565640000034c0000008676696  
577000003d4000000246c756d69000003f8000000146d6561730000040c0000002474656368000004300000000c725452  
430000043c0000080c675452430000043c0000080c625452430000043c0000080c7465787400000000436f707972696768  
74202863292031393938204865776c6574742d5061636b61726420436f6d70616e7900006465736300000000000000127  
35247422049454336313936362d322e3100  
000

volume 82, number 2, March 2005

19.

20.